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EXAMINER	
DUCHENEAUX, FRANK D	

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/544,144	HUSEMANN ET AL.	
	Examiner	Art Unit	
	FRANK D. DUCHENEAUX	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) *15-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/29/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-14, drawn to a product.

Group II, claim(s) 15-33, drawn to a process.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: US 5708109, annotated on the International search Report, teaches the compositional limitations of claim 1 of the present invention while US 6666752 B1 teaches a double-sided pressure-sensitive adhesive tape. Therefore since the limitations of the claims fail to define a contribution over the cited prior art, they fail to constitute a special technical feature and thus, there is a lack of unity of invention between the claims.

2. During a telephone conversation with William Gerstenzang on 6/10/2009 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-14. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-33

withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

4. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be

amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder**. Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), **the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading**. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

5. The disclosure is objected to because of the following informalities: The applicant is directed to previous entry regarding the sections of a specification and the proper form for annotating said sections. Section heading are not all in the upper case and underlining of the headings should be omitted.

Appropriate correction is required.

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 1-14** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. **Claim 1** recites the limitation "the corresponding free acids" on line 7. There is insufficient antecedent basis for this limitation in the claim.

10. **Claim 1** recites the limitation "the homopolymer" on lines 9-10, line 15 and line 21. There is insufficient antecedent basis for this limitation in the claim.

11. **Claim 6** recites the limitation "the weight fraction" on line 2. There is insufficient antecedent basis for this limitation in the claim.

12. **Claim 6** recites the limitation "the polymer" on lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 6, the phrase "the polymer" is indefinite as claim 1, from which claims 5 and 6 depend, recites polymers and it is unclear from the claim limitations to which polymer the phrase refers.

Regarding claim 10, the phrase "adhesive bonding" is indefinite as it is unclear from the claim limitations precisely how a film and a foam carrier are adhered (i.e. with adhesive material or via melt extrusion).

Regarding claim 13, the phrase "having a liner on one or both sides" is indefinite as it is unclear from the claim limitations on what part, portion, surface etc. the liner or liners resides.

Regarding claim 14, the claim is indefinite as it is unclear from the claim limitations to what standard the bond strength is referring, i.e. bonding strength to the carrier or to another substrate of identical composition or of differing composition.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. **Claims 1-3, 5-8 and 12-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. (US 5708109) in view Yamamoto et al. (US 6666752 B1) and in further view of Petrie (*Handbook of Adhesives and Sealants*) and in light of the evidence provided by http://www.sigmaaldrich.com/etc/medialib/docs/Aldrich/General_Information/thermal_transitions_of_homopolymers.Par.0001.File.tmp/thermal_transitions_of_homopolymers.pdf.

Regarding claim 1-2, 8 and 12-13, Bennett teaches pressure sensitive adhesives (title) comprising the polymerization product (mixture, comprising polymers formed) of 25-97 parts by weight of an acrylic acid ester of a monohydric alcohol whose homopolymer has T_g less than 0 °C, 3-75 parts by weight of a nonpolar ethylenically unsaturated monomer whose homopolymer has a T_g greater than 15 °C and 0-5 parts by weight of a polar ethylenically unsaturated monomer whose homopolymer has a T_g greater than 15 °C (column 1, lines 36-48) with specific examples of each being isooctyl acrylate (IOA), isobornyl acrylate (IBA) and acrylic acid (AA), respectively (column 3, lines 42-67 and column 4, line 6) . Bennett also teaches a premix composition consisting of 67 parts of IOA (alkyl radical having 8 carbon atoms, Tg = -50 °C for 2-ethylhexyl acrylate)), 32.5 parts IBA (cyclic alkyl having at least 8 carbon atoms, Tg = 94 °C) and 0.5 parts AA (R_5 = H, Tg = 105 °C) (column 8, lines 45-47). The examiner notes that above glass transition temperatures are evidenced by the attached Sigma-Aldrich data sheet. Bennett continues to teach that the resulting composition is coated onto a substrate (carrier material) including release liners and tape (flat) backings, which may be primed or unprimed paper or plastic (column 5, lines 33-40). Bennett fails to teach a pressure-sensitive adhesive coated on both sides of a carrier material, a carrier material made of PET, a liner on one or both sides and a pressure-sensitive adhesive having a molar mass of between 10,000 and about 600,000.

However, Yamamoto teaches a wafer retainer and method for attaching/detaching the wafer (title) comprising a first pressure-sensitive adhesive layer formed on a back of a foam layer, a support formed on the back face of the first pressure-sensitive adhesive layer, a second pressure

sensitive adhesive layer formed on a back face of the support for adhering to a base plate and a release sheet releasably attached to the second pressure sensitive adhesive layer (abstract), wherein a pressure-sensitive adhesive composition comprises a polymer of a molecular weight of 600,000 formed from acrylates (column 10, lines 36-45), said composition was coated on one face of a support (1) made of a PET film forming adhesive layer (3), a rubber type pressure-sensitive adhesive was coated on the other face of the support forming pressure sensitive adhesive layer (2) and release sheets (liner, both sides) laminated on the adhesive layers, forming a double-sided adhesive tape (column 10, lines 50-64). Bennett and Yamamoto fail to teach the molecular weight ranges recited in claim for the polymeric composition as recited in current claim 1.

However, Petrie teaches properties important for adhesion and that the major property affecting flow is viscosity and therefore molecular weight (page 82-83, para 2.6.2.1). Petrie also teaches properties affecting cohesion such as molecular weight for controlling flexibility and increasing molecular weight for improving cohesion (page 83, para 2.6.2.2, lines 1-3 and page 84, lines 4-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the adhesive tape as taught by Bennett with an adhesive composition comprising polymers of a molecular weight of from about 10,000 to 600,000, said adhesive composition coated on both sides of a support made of PET as taught by Yamamoto towards a double-sided adhesive tape for use in processing (i.e. die cutting) of semiconductor wafers, said

adhesive composition having desired viscosity and cohesivity values for coating of the adhesive composition to a backing and bonding to a substrate(s) to be bonded as in the present invention. The examiner notes that the use of PET as a backing for adhesive compositions and a liner covering an adhesive layer are very well known in the art and as such, would have been an obvious choice to provide such a backing for the adhesive composition and further to provide a release liner to cover the adhesive layer as disclosed by Bennett.

Regarding claim 3, 5, 7, Bennett teaches that the mixture of the polymerizable monomers contains tackifiers and plasticizers (column 5, lines 13-15) and a crosslinker (column 4, lines 30-31) and that coatings are cured (column 5, lines 55-57).

Regarding claim 6, Bennett fails to teach a weight fraction of the tackifier resins as a proportion of the polymer is up to 40 % by weight. However, Yamamoto teaches an amount of tackifier to be added is preferable in the range of about 10% to about 30% by weight, more preferable about 15% to about 25%, based on the adhesive composition and that if the tackifier content is less than about 10% by weight, sufficient adhesion strength may not be attained at ordinary temperatures and that if the tackifier content is more than about 30% by weight, the rate of decrease of adhesion strength may not be sufficient at the time of peeling (column 8, lines 50-58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention t provide the adhesive composition with a tackifier in an amount in order to provide an

adhesive composition with sufficient adhesion strength, whereby said adhesion strength diminishes when a tape comprising said adhesive composition is peeled from a substrate as in the present invention.

16. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. (US 5708109) in view Yamamoto et al. (US 6666752 B1) and in further view of Husman (US 4554324) and in light of the evidence provided by http://www.sigmaaldrich.com/etc/medialib/docs/Aldrich/General_Information/thermal_transitions_of_homopolymers.Par.0001.File.tmp/thermal_transitions_of_homopolymers.pdf.

Regarding claim 4, Bennett and Yamamoto teach the double-sided pressure sensitive adhesive tape as in the rejection of claim 1 above. Bennett and Yamamoto fail to teach polymers in a branched state as graft polymers.

However, Husman teaches acrylate copolymer pressure sensitive adhesive composition (title) comprising a polymer having a backbone with polymerized monomeric acrylic and methacrylic acid ester of a non-tertiary alcohol and having attached (branched) to the backbone polymeric moieties having a weight average molecular weight of above 2000 (abstract), said moieties grafted by polymerizing monomer onto the reactive sites located on said back bone (column 3, lines 28). Husman also teaches that said grafting provides a substantial increase in shear strength to acrylic polymeric pressure sensitive adhesives (column 3, lines 45-48).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the polymer of Bennett in combination with Yamamoto in the form of a graft polymer in order to produce a pressure-sensitive that exhibits increased shear strength as in the present invention.

17. **Claims 9-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. (US 5708109) in view Yamamoto et al. (US 6666752 B1) and in further view of Leonard et al. (US 5599602) and in light of the evidence provided by http://www.sigmaaldrich.com/etc/medialib/docs/Aldrich/General_Information/thermal_transitions_of_homopolymers.Par.0001.File.tmp/thermal_transitions_of_homopolymers.pdf.

Regarding claims 9-10, Bennett and Yamamoto teach the double-sided pressure sensitive adhesive tape as in the rejection of claim 1 above. Bennett and Yamamoto fail to teach a carrier material is a polymer foam of PU, PVC or polyolefin and a carrier material of a combination of a film and at least one foam carrier, said film connected by adhesive bonding to the at least one foam carrier.

However, Leonard teaches a double-sided pressure sensitive adhesive tape (title) comprising a backing, first and second adhesive layers and intermediate layers (combination of a film) in between backing layer (carrier material) and the adhesive layers (column 4, lines 43-48 and

figure 2), said backing layer made of foamed polyolefins (polymer, at least one foam carrier) (column 6, lines line 10), and that the backing is provided as multiple layers (column 5, lines 6-7). Leonard also teaches a tape that can employ a plurality of adjoining adhesive layers on one or both sides of the backing as is shown by layers 22/14 and 24/16, which permits flexibility in the design and construction of the tape and allows one to provide a tape having, e.g., a high tack surface over a high shear adhesive (column 4, lines 64-67 and column 5, lines 1-3 and figure 2) and that the tape of the invention may also incorporate one or more intermediate layers between the backing and the adhesive layer(s), said intermediate layers comprise one of the materials useful as the backing (i.e. foamed polyolefin) (column 6, lines 21-24) and ethylene/vinyl acetate (column 6, lines 31-32). The examiner notes that said plurality of adjoining adhesive layers such as 22/14 and 24/16 as noted above, necessarily provides an adhesive layer between an intermediate layer and backing layer as in the current claims, i.e., polyolefin foamed backing **and** polyolefin foamed intermediate layer (at least one foam carrier) → PSA adhesive layer (adhesive bonding) → ethylene/vinyl acetate intermediate layer (film) → pressure sensitive adhesive layer.

Therefore it would have been obvious to one of ordinary skill in the art to provide the double-sided pressure sensitive adhesive tape as taught by Bennett and Yamamoto with the foamed backing to permit compressibility when adhered to an adherend, said backing bonded by an adhesive to a film in between said backing and an outer pressure-sensitive adhesive layer as taught by Leonard towards a layered double-sided tape assembly that provides flexibility in design and construction (i.e. backing thickness) commensurate with a tape product application as in the present invention.

18. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. (US 5708109) in view Yamamoto et al. (US 6666752 B1) and in further view of Leonard et al. (US 5599602) and in light of the evidence provided by http://www.sigmaaldrich.com/etc/medialib/docs/Aldrich/General_Information/thermal_transitions_of_homopolymers.Par.0001.File.tmp/thermal_transitions_of_homopolymers.pdf.

Regarding claim 11, Bennett and Yamamoto teach the double-sided pressure sensitive adhesive tape as in the rejection of claim 1 above. Bennett and Yamamoto fail to teach a film of a thickness of 5 to 500 μm.

However, Leonard teaches a double-sided pressure sensitive adhesive tape (title) comprising a backing and first and second adhesive layers on opposing surfaces of the backing layer (carrier material) (column 4, lines 30-32 and figure 1) and that the backing layer may be of any desired thickness from very thin, e.g., about 1 micrometer, to very thick, e.g. about 500 micrometers or more (column 6, lines 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the backing layer thickness for the intended application since it has been held that discovering an optimum value of a result-effective variable involves only routine skill in the art (*In re Boesch,* 617 F.2d 272, 205 USPQ 215 (CCPA 1980)) towards a double-sided adhesive tape of a thickness commensurate with said intended application.

19. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. (US 5708109) in view Yamamoto et al. (US 6666752 B1) and in further view of Leonard et al. (US 5599602) and in light of the evidence provided by http://www.sigmaaldrich.com/etc/medialib/docs/Aldrich/General_Information/thermal_transitions_of_homopolymers.Par.0001.File.tmp/thermal_transitions_of_homopolymers.pdf.

Regarding claim 14, Bennett and Yamamoto teach the double-sided pressure sensitive adhesive tape as in the rejection of claim 1 above. Bennett and Yamamoto fail to teach pressure sensitive adhesives differing in bond strength.

However, Leonard teaches a double-sided pressure sensitive adhesive tape (title) comprising a backing and first and second adhesive layers on opposing surfaces of the backing layer (carrier material) (column 4, lines 30-32 and figure 1) and that each adhesive is different than the other providing a tape wherein the adhesive layers have differential tack and adhesion (column 4, lines 57-63).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the double-sided pressure sensitive adhesive tape as taught by Bennett and Yamamoto with adhesives of different adhesion as in the present invention towards an adhesive tape constructed to adhere the tape to two opposing substrates to be bonded wherein the bond to

one substrate is greater than the bond to the opposing substrate, e.g. one surface of the tape is to be permanently bonded to a substrate with the adhesive on the opposing surface to be removed following application of the tape onto said one surface.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. EP 655490 discloses the compounds of the present claims, but does not anticipate the currently claimed % weight contribution of the monomers. EP 1188802 discloses the compounds of the present claims, but does not disclose a double-sided adhesive tape. EP 1302521 postdates the foreign priority of the current application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANK D. DUCHENEAUX whose telephone number is (571)270-7053. The examiner can normally be reached on M-Th, 7:30 A.M. - 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie E. Shosho can be reached on (571)272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FDD

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794